

OFFICIAL COPY.

Mr. Spear's Report to the Local Government Board upon
the Prevalence of Diphtheria in the Penistone Regis-
tration Sub-District, and upon certain Occurrences
therein of Enteric Fever.

R. THORNE THORNE,
Assistant Medical Officer,
September 6th, 1889.

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The Penistone Registration Sub-District is an extensive area of nearly 22,000 acres in the West Riding of Yorkshire. The surface is hilly and broken, and the River Don, a rapid stream, receiving on either side several small rivulets, traverses it from west to east, flowing towards Sheffield. Geologically, the district stands on the sandstone of the lower and middle coal measures, or on the rubble, clay, or shale which overlie, generally for a depth of some 3 to 8 feet, that formation. It comprises two populous centres—Penistone and Thurlstone, situated in close proximity to each other, on or near the banks of the Don towards the centre of the district. Here the population is engaged in steel and iron working, coal mining, some quarrying, shop-keeping, and agriculture. Elsewhere, except for a small locality in the Stocksbridge Urban Sanitary District, industries are almost exclusively agricultural. The sanitary divisions of the district, their area and population, are as follows:—

Penistone Urban, area in acres, 1,133; population (estimated) 2,500.
Thurlstone Urban, area in acres, 8,117; population (estimated) 3,000.
Hoylandswaine Urban, area in acres, 2,024; population (estimated) 800.
Gunthwaite and Ingbirchworth Urban, area in acres, 2,057; population (estimated) 405.
Stocksbridge Urban (part of), area in acres, 1,040; population (estimated) 1,000.
Penistone Rural (part of), area in acres, 7,544; population (estimated) 1,200.

I.—THE OCCURRENCE OF DIPHTHERIA.

The epidemic spread of diphtheria was confined to the two first-named and most populous districts. Except for Hunshelf, in the Stocksbridge Urban District, where some half-dozen cases occurred in June 1888, the remaining districts were entirely free from the disease; and as to the little outbreak at Hunshelf I could discover no connexion between it and the epidemic by

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which the two districts, some miles away, were affected. At Penistone and Thurlstone, between June 1888 and March 1889, 57 households were invaded; and of 327 persons living in the infected households 103 were attacked. Although several mild cases occurred the disease was, on the whole, of a severe type. Nearly 26 per cent. of the cases proved fatal, and amongst convalescents symptoms of local paralysis were occasionally observed.

The monthly record of family invasions in the two districts is as follows:—

District.	Total.	1888.							1889.		
		June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March.
Penistone, U.	37	—	—	1	3	13	10	5	2	3	—
Thurlstone, U.	20	1	2	—	8	3	—	2	—	3	1
Total	57	1	2	1	11	16	10	7	2	6	1

Amongst the first sufferers in families both sexes were almost equally represented; as to age, it will be seen from the annexed table that primary cases were almost exclusively amongst children:—

District.	—	All ages.	Under 1.	1-2.	2-4.	4-6.	6-8.	8-10.	10-14.	14-20.	20-30.	30 and over.
Penistone	Primary cases	37	—	1	6	10	8	3	6	2	—	1
	Secondary cases	47	1	1	7	8	6	5	8	4	3	4
Thurlstone	Primary cases	20	—	—	4	7	4	1	3	1	—	—
	Secondary cases	17	—	2	1	4	1	3	—	2	2	2
Both districts	Primary cases	57	—	1	10	17	12	4	9	3	—	1
	Secondary cases	64	1	3	8	12	7	8	8	6	5	6
Total	—	121	1	4	18	29	19	12	17	9	5	7

The history of certain individual cases pointed to the probability of school attendance being in part instrumental in the spread of the disease; but such influence was not the all-important factor it sometimes becomes, for throughout the epidemic period initial cases in families occurred amongst other than school children. Of the 57 such initial cases 21 were amongst individuals not attending any day school, and 18 amongst those attending neither day nor Sunday school. Of several schools, no single one was specially implicated. Except for the usual holidays the schools remained open.

Other opportunities of personal infection were not, however, wanting; and it is significant that, in several cases, relatives and friends, living in different houses, were successively attacked. No public means of isolation were available in either district, and at Penistone, especially, the most ordinary precautions were neglected. Two cases came under my own notice where several children were allowed to enter houses to take a last look at companions who had died of the disease. Two small shops, at least, one for the sale of provisions and the other for the sale of milk, remained open, while sufferers from diphtheria were lying in rooms adjacent and communicating, the persons in attendance passing to and fro. As might be expected under such circumstances, certain localities were more seriously involved than others. Of the 107 houses in Spring Vale, Penistone, 14 were invaded; a small grouping of cases occurred likewise in the same sanitary district, at the Green, in High Street, Church Hill, and Railway Terrace. Most of the cases at Thurlstone occurred in what is known as "top of the town." In several cases in both districts next-door neighbours suffered.

The first case of this epidemic prevalence occurred at "top of the town" Thurlstone. A certain family pre-disposition to the disease in this case may perhaps be inferred from the fact that in a previous epidemic (1882) one of the



members had been fatally attacked. The surroundings of the house were, in a sanitary point of view, what the inmates justly described as "scandalous":—privy nuisances in front, a foul sewage ditch at the rear, and, in addition, the water supply was unsatisfactory both as to quality and quantity. I could, however, discover no evidence of exposure to direct infection. The children of the family, two of whom were attacked (one fatally), attended the Thurlstone Board School, amongst the pupils of which several cases subsequently occurred.

I am informed by the medical men practising in the district that in 1881-82 there was some continued epidemic prevalence of diphtheria; and that since that date sporadic cases of the disease and of "diphtheritic sore throat" have been by no means uncommon. In February 1888 a death from diphtheria occurred in an isolated farmhouse at Crow Edge, near Thurlstone town, and within the Thurlstone district. I could discover no connexion between this appearance of the disease and the later epidemic outburst. So far as I could find the latter had not been preceded by any notable prevalence of "sore throat." Milk appeared to have had no part in the causation of the epidemic; nor was any suspicion attached to disease in domestic animals.

The little outbreak in the Stocksbridge district to which allusion has been made appeared to be distinct from those above recorded, and occurred in a locality between the inhabitants of which and Penistone or Thurlstone there is little or no communication. It was noteworthy by reason of the fact that although the disease was undoubtedly diphtheritic, most of the cases passed under the name of "croup." Five children of four families were infected, the first case occurring about May 28, and the last about June 7. Two of the families were related, and all the sufferers were friends and school companions. One family lived in the Hunshelf (or Penistone) division of the Stocksbridge Urban District; the other three in neighbouring houses on the opposite (or Stocksbridge) bank of the Little Don. Three of the cases proved fatal, one death being registered from diphtheria, the other two from "croup."

II.—THE OCCURRENCE OF ENTERIC OR TYPHOID FEVER.

In inquiring in the Penistone Registration Sub-District as to the occurrence of diphtheria, two recent and somewhat notable outbreaks of typhoid fever, one originating in the Penistone division of the rural sanitary district and the other occurring in Thurlstone Urban Sanitary District, came under notice, and as they illustrate various sanitary needs to which I shall have presently to refer, I will recount the circumstances.

The outbreak in which the rural district was concerned had for its centre the Oxspring Board School and a little collection of seven dwellings, including the school-house, immediately adjoining. The spot is some two miles from the town of Penistone, and the school, consisting of one building for a mixed class, is attended by children of Oxspring and neighbouring townships to the average number of 100. Between March 14 or thereabouts and the middle of June, 1888, 13 families were invaded by typhoid fever. Four of these occupied one or other of the seven dwellings referred to; one a dwelling in a detached part of Oxspring village; three lived at Penistone; two in the township of Thurgoland; two at Snowdon Hill, and one at Bowden Hill, these places being all within two miles or so of Oxspring. The first recognised case occurred, as I have said, about March 14. The sufferer, Laura L., lived in one of two isolated cottages in the township of Thurgoland, but attended the Oxspring school up to the date of her illness. The family consisted of nine persons, and eight of them suffered from the fever, the attacks occurring successively and at somewhat long intervals; six weeks elapsing between the first and the second. One member of a family of six living in the adjoining cottage was also infected about six weeks after Laura L.'s attack. The water supply of the two houses, from a well liable to contamination, was the same, and the inmates of both were exposed to similar sewage nuisances.

Of the whole series of initial attacks in 13 families, this last appears to be the only one not directly traceable to the centre I have spoken of at Oxspring. In the first week of April one of the two children of the schoolmaster, and a child living at Bowden Hill, but attending the Oxspring school, sickened of the fever, and towards the end of the month another pupil, living at Corunna Terrace, Penistone, was taken ill. In the first week of May three more children attending this school were infected ; one of these lived at Snowden Hill, one in the detached part of Oxspring village, and the other in one of the seven houses close by the school. On the 10th of the month, the master and his wife having meanwhile sickened, the school was closed, and it remained closed until July 16. There were thus up to this time (May 10) eight families invaded in widely separated localities, and in seven the first sufferer attended the Oxspring school.

The five new household invasions after the school closure threw light upon the source of mischief at the school. These later cases were, with one exception, single ones in the respective families, and, with the solitary exception of the secondary case, were all amongst adults. Two of the sufferers had their homes in the little hamlet adjacent to the school ; two others lodged there (in separate houses), during the greater part of each week, and the fifth was a servant-maid at Oxspring Lodge, just above the school-house. These people, while never being on the school premises, so far as I could ascertain, had all habitually used the same water as that provided for the school children. The water was in short the one common factor. Except in the case of the second family invasion at Thurgoland already referred to, and that invasion was sufficiently explained by the circumstances related, the initial sufferer in each of the infected households had habitually used this particular water supply. In all there were 29 recognised attacks, two of them fatal.

The water supply in question is derived from a spring which issues from the millstone grit, and makes its appearance in a grass field at an elevated spot some 1,300 yards from Oxspring school. In its course to Oxspring it is conveyed partly in socketed pipes, but for the greater distance in rough stone channels. These lie quite near the surface in a soil that from time to time, in certain places, is manured by night-soil and other refuse ; they pass in close proximity to some 10 cottages and farmsteads, and here and there, where dipping troughs are supplied, the water is befouled by cattle, swine, &c. Just above the school a branch pipe supplies Oxspring Lodge, where the servant-maid, who sickened from the fever at the beginning of June, was employed ; below it falls into a raised stone cistern, whence by one pipe the school and school-house taps are supplied, and by another, a road-side trough, that serves the six adjacent cottages.

There are about a dozen houses above Oxspring Lodge which derive their water supply from the same stream in its course towards Oxspring. I could not find that any case of fever had occurred in them, although all were visited for the purpose of the inquiry. At Oxspring Lodge, in addition to the servant-maid, several members of a family of eight had suffered much in health, but the medical man had not attributed their ailments to fever. The family had removed at the time of my visit.

This water supply has at various times been the subject of report by the Medical Officer of Health and Inspector of Nuisances ; and Dr. Gresswell, at the time of the "Sanitary Survey" by the Local Government Board, strongly advised the Authority to take measures for its protection. In 1886 a case of typhoid fever occurred at the school-house, and the water supply then was suspected.* Samples, taken at different points, were submitted to analysis, with the result of showing that in its course to Oxspring its quality had suffered notable deterioration. The Authority, however, appear to have been content with the serving of notices upon the occupiers of adjacent premises "not to pollute the stream," and with the cleansing of the cistern and trough. Again, in September 1889 complaint was made, and the Inspector of Nuisances reported that he found the stone channel "almost made up with all kinds of filthy refuse." Still no decided action was taken, and then, in the following year, came the outbreak of fever I have reported upon.

* I could find no ground for a local rumour that in this case the disease was imported.

The Authority thereupon submitted four samples, taken at different points, to Mr. Allen, of Sheffield, for analysis. The results, given below, demonstrate the pollution of the supply as it reaches Oxspring :—

	No. 1. At head of Stream.	No. 2. Distance below.	No. 3. Tap at Oxspring Lodge.	No. 4. Trough at roadside.
Total solids (grains per gallon)	7.70	13.44	7.00	12.04
Non-volatile matter	4.90	10.22	4.34	8.68
Loss on ignition	2.80	3.22	2.66	3.36
Chlorine	0.72	0.68	0.70	0.70
Nitrates and nitrites	Moderate	Moderate	Moderate	Moderate
Free ammonia (parts per million)	0.02	0.05	0.02	0.04
Albuminoid ammonia	0.06	0.32	0.06	0.20
Oxygen required for oxidisable organic matter }	0.00	1.72	0.00	0.60

I understand that the results of these analyses were considered inconclusive, because sample 3, taken below sample 2, showed no pollution. It is, however, obvious that a negative result in the chemical analysis of a single sample of running water can prove no more than that the water may be at times free from such impurities as chemical analysis shows ; while positive results of contamination, such as are afforded by samples 2 and 4, must be regarded as settling at rest the question of the water's unfitness for potable purposes. The Authority further aver that another supply for the school and neighbouring cottages is available in what is known as the "Quarry Spring." That, however, is too distant and too difficult of access to be willingly resorted to, even if it were in other respects entirely satisfactory ; as a matter of fact the supply that has shown itself to be subject to such dangerous pollution remains, in its unprotected state, still in use, both by the cottagers and the school children.

The other outbreak of typhoid fever that claimed attention occurred in the Thurlstone Urban Sanitary District, and concerned one remotely situated farmhouse only. The family here consisted ordinarily of 10 persons—the farmer and his wife, 7 children, the youngest of whom was eight years old, and a farm servant ; but during part of July and August, 1888, lodgers were received, so that two families, one from Manchester and the other from Salford, had successively stayed in the house, and on one or two nights in August sleeping accommodation had been given to a shooting party. So far as the farmer knew there had been no sickness of a suspicious character amongst these temporary visitors either before or after their stay, and it was believed that he would have heard of it had any such occurred. About the last week in August the mother of the family, aged 43, sickened of typhoid fever ; early in September the youngest child was attacked, and then at intervals seven others ; so that all the inmates of the house, except the father, aged 63, suffered. The disease was of a severe type in the greater number of cases, and three of the sufferers, the mother and two elder daughters, aged respectively 43, 22, and 20, died ; the first death occurring on October 13, 1888, and the last on January 30, 1889.

The mother was said rarely to leave the farm even for the nearest town, and not to have been away from home for some time preceding her attack. The number of visitors that had been received into the house suggests the possibility of the introduction of infection in this way, but, as I have said, no evidence of this was forthcoming. So far as was known typhoid fever had not occurred at the farm before.

The farm premises were, even at the time of my visit, exceedingly filthy, from large accumulation of manure, &c. close by the house doors, and from the absence of proper surface drainage. The slop-water drainage also was unsatisfactory and the source of nuisance; the privy was situated some yards from the house, the cesspool extending beneath the pig-sty; water was obtained from a little dip-well in the pantry, provided with an overflow pipe, the course of which was not discovered, and fed by a rough stone channel laid shallow in the soil and conveying water from a neighbouring grass field. It was said that the water was habitually boiled before use.

Some 16 cows are ordinarily kept at the farm, the milk being used for butter-making; sheep, poultry, pigs, and horses are likewise kept.

A cow and two calves had died on the farm at the beginning of July, the cause of death being in the first case, it was said, "inflammation of the lungs"; and about the same time two pigs, the only ones then on the farm, and they had been purchased only a few days, sickened of what was spoken of as "pig typhoid."* One of the pigs died after profuse haemorrhage from the bowels, the other recovered. The pig-manure was said to have been deposited along with the large heap of general farmyard refuse in the space before the house door. No other illness amongst the stock appears to have occurred.

Although the immediate cause of this outbreak of fever must be regarded as undiscovered, it will not fail to be remarked that the condition of the premises was such as is constantly found associated with the appearance and spread of enteric fever, and it is a matter of serious reflection for the Sanitary Authorities of this registration sub-district that conditions such as these, to which so much danger attaches, are common to a large proportion of the farmsteads comprised within the districts over which they have control.

III.—GENERAL SANITARY CONDITION AND ADMINISTRATION.

THE PENISTONE URBAN SANITARY DISTRICT.

This district consists of the town of Penistone, with a population estimated at 1,300, and various outlying but adjacent localities:—Spring Vale, population 540; Penistone Green, population 320; Bridge End, population 260; and Corunna Terrace, a row of 17 houses. These places all suffered more or less from diphtheria.

In the town of Penistone sewers have for the most part been provided, and in 1886 a new sewer, replacing an old stone culvert, was constructed in the High Street. The ventilation of the sewers is inadequate, the few surface ventilators being covered over: and means of flushing are wanting. The sewage is discharged on to grass land just below the town, towards Bridge End; but owing to some difficulty with the landowner no attempt at utilisation is made, and the liquid flows in foul streamlets to the river, or forms pools which constitute a nuisance to houses in the vicinity.

At Spring Vale a public sewer is likewise provided, but here, also, the disposal of the sewage is unattended to. It is carried some 100 yards from the houses, and thence flows in a filthy stream to a neighbouring rivulet.

In the other places no regular sewers exist. The houses at Penistone Green are drained by various rough channels to a neighbouring brook; those at Bridge End are provided partly in this way and partly with cesspools. Corunna Terrace has three large cesspools situated close by the houses. They are ventilated only through the chinks of their imperfect coverings, and emptied by simply pumping the contents over the boundary wall into a field where the sewage stands in pools until it slowly soaks away.

Private drainage throughout the district is of the most imperfect description. The "disconnection" of house drains has been carried out in such a rough and clumsy manner that the ground around the external gully

* I heard of other pigs purchased of the same dealer sickening in a similar way. It is to be remarked, however, that "pig typhoid" is not regarded as the same disease as typhoid fever in the human subject.

becomes sodden with sewage. Many direct connexions exist in cellars. Although Penistone proper is sewered, several of the houses there are still only provided with cesspools, or from which sewage is allowed to flow over some adjacent vacant space.

The privy-midden system is in vogue, and the great majority of the middens are large and deep, often badly situated, and very offensive. For new houses, what is regarded as an improved receptacle has been adopted ; but it is designed with the intention of permitting large accumulations of refuse, and so infringes the prime condition of real improvement. As a matter of fact, the difference in offensiveness between the new and the old structures is scarcely appreciable. No public provision for removal of refuse exists, and large accumulations are common.

Considerable nuisance results from the unpaved and sloppy condition of private streets, yards, &c. Stable and cow manure is allowed to accumulate largely in various places. The slaughter-houses are ill-regulated and a nuisance, and cowsheds are unregistered and apparently uninspected.

Many of the cottages are damp and ill-ventilated ; some few are overcrowded.

The water supply is in the hands of the Sanitary Authority. It is pumped from a deep well sunk, near the river bank into the sandstone rock, at a spot about a mile above Penistone. Analysis has shown some traces of albuminoid ammonia in this water, but the supply is believed to be quite independent of the flow in the river. It is supplied to all parts of Penistone except Bridge End, where a dip-well, fed by a stream piped from a neighbouring grass field, is mainly resorted to. A few local wells exist in various parts of the district ; one of these I found supplying (unknown to the sanitary officials) a dairy in Penistone ; another near Bridge End, although in full use, was, and had been for some time it was said, obviously polluted by sewage.

Dr. Gresswell visited this district on behalf of the Local Government Board in 1887, and reported to the following effect :—

- (1.) That the duties of the Medical Officer of Health and those of the Inspector of Nuisances, as such duties are defined by the order of the Local Government Board, were not performed ;
- (2.) That the sewer system was incomplete and sewage imperfectly disposed of ;
- (3.) That new sewers and drains were constructed without adequate skilled supervision ;
- (4.) That sewers and drains were insufficiently ventilated, and that the sewers were without means of flushing ;
- (5.) That privy-middens were so constructed and so situated as to create nuisances, and that the removal of refuse was neglected ;
- (6.) That houses were often ill-ventilated and damp, and occasionally over-crowded, and that yard surfaces were unpaved and sodden ;
- (7.) That private streets were unmade and neglected ;
- (8.) That slaughter-houses were so conducted as to be a nuisance ;
- (9.) That certain local water supplies liable to contamination were in use ;
- (10.) That the byelaws were obsolete, and that there was no adequate supervision of building operations ;
- (11.) That means were wanting for dealing with spreading disease.

It will already have been gathered that very little advance has been made since the date of Dr. Gresswell's visit. In effect, except for the substitution of a pipe sewer—which is imperfectly ventilated, unprovided with means of flushing, and only partially utilised—for an old stone culvert in High Street, Penistone, and for the adoption of a somewhat improved but still most unsatisfactory pattern of privy-midden for use in new property, nothing has been accomplished.

One important cause of this failure has undoubtedly been the neglect of the Authority to provide themselves with adequate skilled advice. The Medical Officer of Health, Dr. Gowing, is in active private practice in the neighbourhood. It was said that on rare occasions he had attended the Sanitary Authority's meetings ; but I could not learn of any

specific instance or of any result of such attendance. As to written reports, or any register of work performed by this officer, the Local Government Board possess in the copies of reports forwarded to them the whole of such records. They are almost completely destitute of useful information. Dr. Gowing receives 13*l.* a year as Medical Officer of Health.

The work of the late Inspector of Nuisances appears to have been equally neglected. For 1887 there are in this officer's report book only eight entries of nuisances dealt with, seven of these relating to over-full or dilapidated privies; and for 1888 there are only two nuisances recorded—one a defective privy and the other defective drainage. The present officer had only held the appointment some three months at the date of my inquiry. He receives a salary of 10*l.* as Inspector of Nuisances, and a weekly wage of 2*ls.* as surveyor. He is by trade a working mason, and appears to be very willing in the discharge of duties, but is uninstructed. He, too, had only taken account of some half-dozen cases of overflowing ash pits and the like.*

The Authority are as destitute of means of dealing with spreading disease as at the time of Dr. Gresswell's visit; and little, if any, care has been taken by their officers even to make themselves acquainted with important outbreaks of such disease. I have already spoken of the unrestrained intercourse permitted between infected and healthy families in the diphtheria epidemic. The circumstances of the family outbreak of typhoid fever at Corunna Terrace (referred to on page 4) afford another instance of administrative neglect. Into that row of dwellings—a detached row, but only a few hundred yards from the town, and to which constant attention was required owing to the condition of its surroundings—a case of typhoid fever was imported towards the end of April 1888. The disease slowly spread through the family until, in the beginning of September, after three children had suffered, the father was fatally attacked; and, as Dr. Gowing informs me himself, it was only then, after the death was registered, that the fact of the outbreak came to the knowledge of the Medical Officer of Health. It is not too much to say that so grave a circumstance as this appearance of fever, in such a locality, could not have remained for five months hidden from the officer mainly concerned in protecting the health of the town had proper sanitary supervision or organisation existed.

A special meeting of the Sanitary Authority was called to meet me at the conclusion of my inspection, but only three members attended. I explained to them the measures that were required for placing the sanitary administration of the town on a proper footing and for improving its sanitary condition.

THURLSTONE URBAN SANITARY DISTRICT.

Of the estimated population of 3,000 in this district some 2,100 occupy the town of Thurlstone, the remainder living in small widely scattered hamlets and isolated farmsteads. The great majority of the cases of diphtheria occurred in the town portion.

About half the town of Thurlstone is sewered by socketed pipes, the remainder by old stone drains. Of whatever class, the sewers are imperfectly ventilated and discharge either into the Don or on its banks, or into a small rivulet which passes at the back of the town or village. The outlying hamlets are, for the most part, rudely drained to the nearest watercourse.

The private drains are stated to be often of rough stone work; "disconnection" has been carried out in a number of instances, but the work has

* As instancing the need of instruction and supervision, I may mention that when I examined this officer's books one of the last entries recorded a visit to Unwin Street, about the condition of which it was stated there was "nothing to report." I happened to have visited this particular row of houses, and knew that very grave sewage nuisances existed there, and so requested the Inspector to visit again the first house in the row, to make a thorough inspection, and to report the result to me. He reported that in the cellar of the house—a cellar reached by an internal staircase from the kitchen—direct communication (through which, apparently, rats invaded the house) existed with some unknown drain; that the houses were not connected with the public sewer, but drained to deep cesspools in the house yards; that the cesspool of No. 1 had not been emptied for years, and that the contents were now apparently "soaking into the cellar about the level of the third step from the floor."

been done in such a slovenly way that sewage often escapes over the soil, and many cellar drains are still in direct communication with the common sewers, so that houses are invaded by sewer air. Some few cottages are totally unprovided with drains (those in the upper part of Blue Ball Yard, Thurlstone town, are examples), and sewage is thrown on the bare surfaces about the dwellings. No public provision for refuse removal exists, and excrement and house refuse are stored for long periods in large, deep, and often badly-situated middensteads. The surface about dwellings is unpaved and often littered with this filth. Very large and offensive accumulations of stable and cowshed refuse are permitted.

Many of the houses, especially of Thurlstone town, are very old and damp and badly ventilated; some are quite unfit for habitation from this cause and from their sewage-sodden surroundings. A considerable amount of crowding in houses appears to exist. The Board Schools are ill-ventilated and the odour from foul privies invades the rooms. The single common lodging-house is ill-regulated and overcrowded.

The Dairies, Cowsheds, and Milkshops Order is not enforced. Dairies are not registered, and in certain cases milk is dealt with in objectionable places, and where the water supply is open to grave suspicion.

The water supply of Thurlstone town is unsatisfactory, both as to quantity and quality. It is chiefly obtained from two public pumps, one of which is known to afford water of dangerous character; and the other, water that is turbid after rain and probably at times contaminated. The outlying districts are, for the most part, provided with dip-troughs, these taking water that is in various ways liable to pollution.

The Authority possess no hospital for the isolation of cases of infectious disease, nor any disinfecting apparatus.

Dr. Gresswell visited this district, together with the neighbouring districts, in 1887, and made certain recommendations to the Authority upon all the above-mentioned sanitary deficiencies. The matter of water supply has engaged the attention of the Authority, and certain trial borings have been made by them, but as yet there has been no progress in elaborating a proper scheme. The Authority should take the advice of a skilled engineer and proceed definitely with the work. In other respects also there has been great laxity. A few new drains have been laid, a few direct house connexions with the common sewers have been severed, a few new privies built, and one house unfit for habitation is reported to have been closed. Such trifling action has scarcely done more than neutralize the effects of simple structural decay, and it cannot be said that any material advance has been made since Dr. Gresswell's visit.

The Medical Officer of Health, Dr. Wilson, who holds the corresponding office for the Oxspring division of the rural sanitary district, and is likewise the poor law medical officer, receives a salary of 10*l.* per annum. His reports contain useful and appropriate advice to the Sanitary Authority, but, as he himself has had occasion to complain, nuisances reported by him are not dealt with. It is probable that more time is required to be given to the office, more frequent attendance at the meetings of the Sanitary Authority, a greater insistence upon advice, and especially more thorough supervision of the work of the Nuisance Inspector.

The latter officer receives a salary of 10*l.* His duties appear never to have been properly defined; and the record of his work and of the notices served by him show that attention has been almost exclusively devoted to nuisances of the recurring class—over-full middens and the like. Of real permanent improvement there is scarcely any record.

HOYLANDSWAINE URBAN SANITARY DISTRICT.

This district consists of a scattered village, or rather of two or three detached but adjacent hamlets, and contains a population estimated at 800.

The chief facts concerning its sanitary condition and administration reported by Dr. Gresswell were as follows:—

Sewers, consisting chiefly of old stone drains, but with about 150 yards of socketed pipes, discharging into a brook at some little distance.

Drains almost wholly of rough stone work, laden with filth, often directly connected, or nearly connected, with the interior of houses.

Middens sunk or open at rear. Scavenging left to occupiers, and grossly neglected

Many houses decayed, badly ventilated, damp, dirty, and some overcrowded.

Water from dip-troughs, fed from garden and meadow land by old rubble drains, the water being much exposed to contamination from various sources. Such supplies 100 yards distant from houses on an average. Six houses supplied from the Barnsley mains which pass the village.

He further reported that the Medical Officer of Health was wholly unacquainted with the nature of his duties; that the Inspector of Nuisances had asked the Authority for information as to his duties, but had got no reply, and that no record of work undertaken by the Inspector was kept.

Since the date of Dr. Gresswell's visit two standpipes from the Barnsley mains have been provided, but this only at the lower part of the scattered village, and even there the pressure is so inadequate that it is said the water will often scarcely flow. This part is, moreover, quite out of reach of the upper and more populous locality, where the inhabitants are still dependent upon polluted supplies. No other sanitary improvement can be recorded, and this although there are houses quite unfit for habitation in their present condition, and some gross overcrowding.

The Medical Officer of Health, Dr. Gowing, the Medical Officer of Health of Penistone Urban District, receives remuneration at the rate of five guineas per annum. His reports are before the Board, and their inadequacy has been the subject of correspondence. The Inspector of Nuisances, who receives 2*l.* per annum only, appears to be quite unacquainted with his duties, and receives no directions or assistance from the Medical Officer of Health. He tells me that he has applied for a book in which to record his visits but has not received any, and consequently no record of his work is preserved. Dairies have not been registered or regulated, and such action is much required.

GUNTHWAITE AND INGBIRCHWORTH URBAN SANITARY DISTRICT.

This district consists of only some 87 houses, of which 67 are situated in the village of Ingbirchworth. The water supply and sewerage of that village have been the subject of much recent correspondence between the Authority and the Local Government Board, but little or no result has yet accrued. A part only of the village is sewered, and the sewage of that part is imperfectly disposed of. The water supply generally is from roadside dip-troughs liable to pollution and for the most part not within reasonable distance of dwellings; sometimes, it is said, a sewage-polluted stream is resorted to. Many of the houses are damp and ill-ventilated. The improvement of many of the privy-middens has been attempted, but as there is no regular scavenging and large accumulations of refuse are allowed, the effort has had little result. The Medical Officer of Health, who holds a similar office under the Rural Sanitary Authority and under the Clayton West Local Board, receives a salary of 7*l.* The Inspector of Nuisances, who is Inspector also for the Rural district, and is an active officer, has a salary of 5*l.*

THE PENISTONE DIVISION OF THE STOCKSBIDGE URBAN SANITARY DISTRICT.

The Stocksbridge district has a population estimated at 6,000, about 1,100 being within the Penistone division, with which my inquiry is chiefly concerned. The Sanitary Authority have not been inactive since Dr. Gresswell's visit. A new pipe sewer has been laid at Deepcar; some 156 private drains have been "disconnected" from the sewers; the water supply has been supplemented by a higher level reservoir so as to serve some 80 additional houses; a small wooden isolation hospital has been built, and a system of notification of infectious disease has been set on foot; a fee being

paid for each notification. The dairies are registered and periodically inspected, and the Authority have lately been engaged in revising their various codes of byelaws. The Medical Officer of Health has a good knowledge of the sanitary condition and wants of his district, and the Inspector of Nuisances is an active officer. Many improvements have still to be introduced. The sewers are inadequately ventilated, and they all discharge sewage unpurified into the Little Don as it passes through the district. The privy-midden system is in vogue, and the efforts of the Authority to remedy the nuisances that result, by somewhat lessening the size and raising the floor of the midden, have not been successful. The removal of refuse is undertaken by the Authority through contractors where no provision is made by owners of property for this object, but the work is done without system and at much too long intervals. Although certain improvements have been made in this direction, still a large amount of work is required in securing the better paving and surface drainage of spaces about dwellings; and the same may be said as to the improvement of private slop-water drainage. A number of houses are still unprovided with water from the public mains, and the present public sources of supply prove insufficient for all purposes in times of drought. The flushing of the sewers has then to be discontinued or unduly curtailed, and, on one occasion, for a period of some three weeks, a nightly discontinuance of the service had to be resorted to. Dampness of cottages and want of proper ventilation of rooms are matters that need the attention of the Authority. Where lodgers are received, there is occasionally some tendency to overcrowding.

THE PENISTONE DIVISION OF THE RURAL SANITARY DISTRICT OF PENISTONE.

This division comprises the townships of Langsett and Oxspring and part of Hunshelf; the population in 1881 was 1,102. In reporting upon the water supply of Oxspring I have already dealt with perhaps the most urgent sanitary need of this division. In other respects, however, activity on the part of the Authority is required; and, so far as this division (the only one of the rural district visited by me) is concerned, I did not find material improvement since Dr. Gresswell's visit. His report recorded the following chief facts:—

- (1.) Privy-middens, although in many cases re-constructed, the source of much nuisance.
- (2.) Scavenging left to occupiers and neglected.
- (3.) Water supplies from dip-troughs often fed so as to involve pollution, and often inadequate.
- (4.) Many decayed dwellings, damp, badly ventilated, and with sloppy and befouled surroundings.
- (5.) Many houses without drainage of any sort; others with faulty drain connexions.
- (6.) No public provision for isolating infectious disease.

It may be added that the dairies, certain of which are surrounded by filth nuisances, and provided with water from polluted sources, require much more stringent regulation; that more frequent inspection of the district by the Medical Officers of Health and Inspector of Nuisances, acting in concert, is required; that the latter needs more assistance and more frequent and explicit direction and advice from the superior officers; and that no proper system exists for early discovery of outbreaks of infectious disease, or for the application, in the face of that danger, of needful precautions.

It will be seen from the above general description of the sanitary condition of the districts that go to form the Penistone Registration Sub-District that, except at Stocksbridge, little has yet been done towards carrying out the

measures recommended by Dr. Gresswell. His recommendations, therefore, are still applicable; and the necessity for adopting them has, with the growth of the districts, become, if anything, more urgent. The combination of certain of these districts, especially the urban ones of Penistone, Thurlstone, Hoylandswhite, and Gunthwaite and Ingbirchworth, in the appointment of one Medical Officer of Health, at an adequate salary, was one of the measures deemed advisable by Dr. Gresswell. The rural district likewise might advantageously combine with the urban districts for this purpose. It is a measure that cannot be too strongly urged upon the Sanitary Authorities concerned.

JOHN SPEAR.